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Attorneys for Defendants

**UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA**

ILLUMINA, INC. and
ILLUMINA CAMBRIDGE LTD.,

Plaintiffs,

v.

BGI GENOMICS CO., LTD.,
BGI AMERICAS CORP,
MGI TECH CO., LTD.,
MGI AMERICAS INC., and
COMPLETE GENOMICS INC.,

Defendants.

) Case No. 3:19-cv-03770

) Case No. 3:20-cv-01465

) **DECLARATION OF STEPHEN ROGERS**
) **IN SUPPORT OF DEFENDANTS'**
) **OPPOSITION TO ILLUMINA'S**
) **MOTION FOR PRELIMINARY**
) **INJUNCTION**

) **CONTAINS OUTSIDE ATTORNEYS'**
) **EYES ONLY INFORMATION**

1 I, Stephen Rogers, declare as follows:

2 1. I have personal knowledge of the facts stated herein. I could and would testify that
3 the following facts are true and correct, to the best of my knowledge, if called upon to do so.

4 2. I am currently employed by MGI Americas, Inc. as the Country Manager for
5 Canada. My responsibilities include helping to introduce new products to the market, strategizing
6 on product launches, hiring and managing the Canadian sales and support teams, and overseeing
7 sales of sequencers to customers.

8 3. My employment with MGI Americas, Inc. began on September 4, 2018. Prior to
9 that and over a period of 7 years (*i.e.*, from 2010-2018), I served various roles with a sequencing-
10 focused distributor D-Mark Biosciences in Canada, from Genomics Specialist to National Sales
11 Manager. Before that, I spent two years developing the emerging sequencing market and selling
12 genomics products in Canada as an Account Manager and Product Specialist for a U.S.
13 manufacturer's representative of Agilent Technologies. I have dedicated the last 12 years of my
14 career to introducing new genomics technology to the Canadian market.

15 4. I was hired by MGI to build its commercial operations in Canada, including hiring
16 service and support staff and establishing a Canadian sales and business operation that could be
17 competitive in the Canadian genomics market.

18 5. Based on regular, direct contact with customers, I believe customers are interested
19 in purchasing MGI's sequencers for a number of reasons, including their sequencing data
20 accuracy, throughput improvement, and cost benefit. MGI's sequencers utilize DNA nanoball
21 sequencing technology ("DNBSEQ"). Ex. D57 at CGI000045321; Ex. D58 at CGI000045654-56,
22 CGI000045658-63; DN 12-20 at 12 (Van Oene, Ex. T). Specifically, DNA is fragmented,
23 repaired, then the ends are ligated to a set of adapter sequences, and the double-stranded DNA is
24 separated to form a single-stranded DNA template. Ex. D58 at CGI000045654-56; DN 12-19 at
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1 8-17 (Van Oene Ex. S). The single-stranded DNA template is then circularized. Ex. D58 at
2 CGI000045654-56; DN 12-19 at 8-17 (Van Oene Ex. S). Then, the templates are converted to
3 DNA nanoballs through rolling circle amplification. Ex. D58 at CGI000045654-56; DN 12-20 at
4 18-21 (Van Oene, Ex. T). This process is referred to as “linear amplification,” and has the
5 advantage that each copy of the DNA template is created from the original template as opposed to
6 making a copy of a copy. Ex. D57 at CGI000045321; Ex. D58 at CGI000045654-56; DN 12-20
7 at 12 (Van Oene, Ex. T).
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9 6. In contrast, Illumina’s sequencing technology is a PCR amplification-based
10 system, which relies on making copies of copies. PCR amplification can cause (a) false single
11 nucleotide polymorphism (“SNP”) detection, (b) false insertion/deletion detection, (c) GC bias for
12 G-C rich DNA regions, and (d) index hopping. Ex. D57 at CGI000045321; Ex. D58 at
13 CGI000045656; Ex. D96 at 8-27; DN 12-20 at 12 (Van Oene, Ex. T). Compared to PCR
14 amplification, DNBSEQ’s linear amplification approach has lower amplification bias, no
15 amplification of error accumulation, and lower index hopping. Ex. D57 at CGI000045321; Ex.
16 D58 at CGI000045656; DN 12-20 at 12 (Van Oene, Ex. T).
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18 7. With respect to MGI’s CoolMPS technology, I believe that customers are drawn to
19 its potential to deliver longer, more accurate reads and brighter signal. Ex. D57 at
20 CGI000045324; Ex. D58 at CGI000045657; Ex. D94; Ex. D95; DN 1-52 at 3-16 (Mot., Ex. 52);
21 DN 12-20 at 15 (Van Oene, Ex. T). CoolMPS sequencing uses unlabeled nucleotides with
22 extension blocks that bind to the DNA fragment and nucleotide base-specific block-dependent
23 antibodies that bind the unlabeled nucleotides. Ex. D94 at 1; Ex. 95 at 1; Ex. D57 at
24 CGI000045324; DN 1-52 at 2-7 (Mot., Ex. 52); Ex. D58 at CGI000045657; DN 12-20 at 15 (Van
25 Oene, Ex. T). After signal detection, the block is cleaved resulting in the natural nucleotide
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1 without a scar. Ex. D94 at 1; Ex. D95 at 1; Ex. D57 at CGI000045324; Ex. D58 at
2 CGI000045657; DN 1-52 at 7 (Mot., Ex. 52); DN 12-20 at 15 (Van Oene, Ex. T).

3 8. The DNBSEQ-G400RS sequencers were first made available to the Canadian
4 market before my start date, September 4, 2018. In November 2017, BGI, in collaboration with
5 Sinai Health in Toronto, was awarded a Genome Canada funded partnership to develop a
6 diagnostic test for preterm birth. This collaboration included the MGISEQ-2000RS sequencer,
7 which was subsequently renamed DNBSEQ-G400RS.
8

9 9. During the first 12 months of my employment with MGI, we actively tried to
10 market sequencing technology, including by: (a) presenting at various Canadian conferences and
11 seminars; (b) meeting with key opinion leaders to discuss avenues to introduce the technology to
12 Canada; (c) engaging in extensive evaluations and demonstrations of the technology; and (d)
13 setting up the appropriate sales channels and logistics to supply the equipment and reagents
14 according to the local business standards. Additionally, we hired and trained sales support along
15 with pre- and post-sales support staff in Vancouver and Toronto.
16

17 10. During the first 12 months of my employment, we sold only [REDACTED] DNBSEQ-
18 G400RS sequencer despite our extensive marketing efforts. During the following six months, we
19 only sold [REDACTED] additional DNBSEQ-G400RS sequencers. Thus, in the first 27 months that the
20 DNBSEQ-G400RS sequencers were available in Canada, we were only able to sell [REDACTED]
21 sequencers, specifically [REDACTED] NBSEQ-G400RS sequencers.
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23 11. Those sales have resulted in less than [REDACTED] revenue, including sequencers
24 and associated reagents.

25 12. Based on my experience attempting to sell MGI sequencers in Canada, there is a
26 significant lag time between initial marketing of new sequencer products and consummated sales.
27 This is the result of a number of factors.
28

1 13. Prior to committing to purchase an MGI sequencer, customers need to verify the
2 accuracy of the sequencer's data, which requires demonstration, testing and a comparison of the
3 new sequencer to the customers' current sequencers and/or sequencing chemistry. Customers
4 often request a lengthy period of testing and validation of the technology at no cost to the
5 customer other than labor.

6 14. Based upon my experiences, customers also need to feel comfortable that they can
7 continue to receive technical services for the sequencer and be able to purchase all the necessary
8 materials, such as reagent kits. MGI had to take extensive steps to adhere to competitive
9 Canadian business practices including hiring local pre and post-sales support personnel in Canada
10 and establishing a new Canadian business entity to improve ordering and reagent kit supply and
11 delivery.
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13 15. Prior to purchasing an MGI sequencer, customers also consider how the MGI
14 sequencer will fit into the customer's overall workflow. *See, e.g.*, Ex. D54at CGI000045307-08.
15 The workflow includes the preparation of samples manually or via automated workstations,
16 analysis of the sequencing data, and storage of that data, among other steps.
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18 16. Despite our sales and validation efforts, many potential customers have been
19 unwilling to purchase our sequencers. In my experience, one factor that has deterred customers
20 from purchasing an MGI sequencer is the concern that if any reagent sales volume is shifted from
21 Illumina to MGI, the customer may have to pay a *de facto* penalty by losing access to certain
22 volume-based or sole-source discounts on their remaining purchases from Illumina. In my
23 experience, the potential for loss of these discounts poses an important consideration in the minds
24 of potential MGI customers, and pose a substantial barrier to MGI's entry in the sequencing
25 market. For example, it is my understanding that some potential MGI customers have been
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1 approached by Illumina and threatened with financial ramifications if those customers purchase
2 MGI sequencers.

3 17. In my experience with entities that have purchased or expressed interest in
4 purchasing MGI sequencers, they have identified specific, new applications for MGI sequencers.
5 The University of Toronto, as discussed below, is one such entity. Based upon our discussions,
6 these customers do not seek to replace their Illumina sequencers with MGI sequencers, but rather
7 supplement their laboratory's capabilities with an additional sequencer from MGI. It is my
8 understanding that most MGI Canada customers currently operate Illumina sequencers and are
9 expected to continue their operation of Illumina sequencers. Indeed, it is my understanding that
10 some customers have their own clients who specifically request use of Illumina sequencers.
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12 18. For example, the Guttman Lab at the University of Toronto owned and currently
13 uses two of Illumina's sequencers, one NextSeq and one MiSeq, that utilize PCR amplification-
14 based sequencing. Ex. D54 at CGI000045307-08; Ex. D73 at CGI000045421. Starting in
15 September 2019, the Guttman Lab sought to purchase a new next-generation sequencer using
16 DNBSEQ technology from MGI to avoid errors associated with PCR-amplification. Ex. D54 at
17 CGI000045307-08. The Guttman Lab planned to use MGI's sequencers "to generate sequence
18 data of mixed populations of organisms" because the MGI's PCR-free sequencer would allow the
19 lab to report "the absolute amounts of organisms present in the population." Ex. D54 at
20 CGI000045307-08. To my knowledge, the Guttman Lab intended to continue using their
21 Illumina sequencers.
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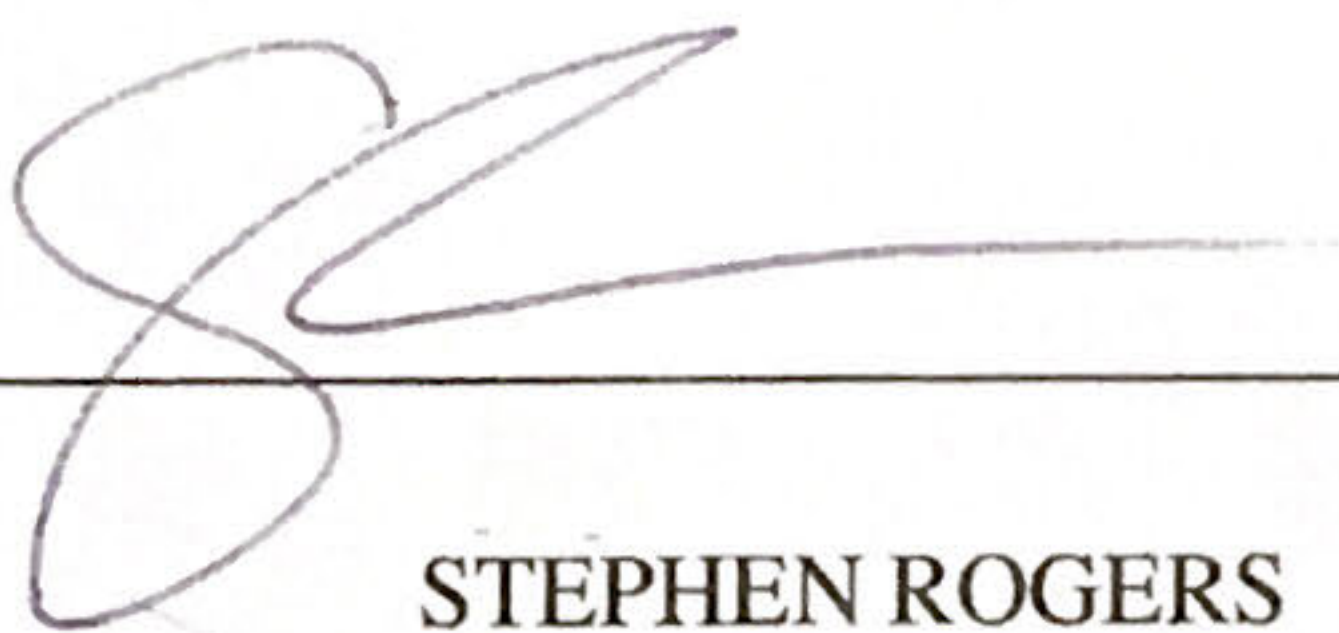
23 19. Nevertheless, Illumina challenged the Guttman Lab's public Advance Contract
24 Award Notice, which resulting in cancellation of the contract with MGI. The Guttman Lab then
25 opened a public Request for Proposal ("RFP") for a "next-generation genome sequencing
26 platform that uses *linear template amplification* technology" with "a throughput (i.e. rate) capable
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1 of producing *at least 200 Gigabases (Gb) of DNA sequence data* per day, and an *output (i.e.*
2 *yield) of at least 1 billion reads / run.*” Ex. D73 at CGI000045422 (emphasis added). Both
3 Illumina and MGI submitted proposals in response to the public RFP, and MGI was awarded the
4 contract after the public RFP process. It is my understanding that the RFP had specific technical
5 requirements because the Guttman Lab was seeking to avoid errors caused by PCR amplification,
6 which is a goal better achieved by using MGI sequencers. Furthermore, because the Guttman Lab
7 already has two Illumina sequencers and plans to continue using those sequencers, it is
8 advantageous for the Guttman Lab to have a variety of sequencer platforms for its work, as each
9 platform may have different advantages for different applications.

11 20. In addition to providing sequencers and associated reagent kits, MGI also sells
12 automated sample preparation systems. MGI’s sample preparation kits include the MGISP-960
13 and MGISP-100. Ex. D76; Ex. D77; Ex. D78. These sample preparation systems do not perform
14 sequencing and do not use sequencing reagent kits. Ex. D76; Ex. D77; Ex. D78. They do not
15 utilize labeled nucleotides, nor do they involve the incorporation of labeled or unlabeled
16 nucleotides for purposes of sequence determination. Ex. D76; Ex. D77. They may be used to
17 prepare samples for use with a variety of sequencing systems, including those of MGI and other
18 manufacturers. Ex. D76; Ex. D77. In my experience, customers purchase MGI sample
19 preparation systems for use with various applications related to genomics sample preparation
20 prior to analysis, including nucleic acid extraction, PCR set-up, and next generation sequencing
21 library preparation prior to sequencing.
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1 I declare under the penalty of perjury under the laws of the United States of America that
2 the foregoing is true and correct.

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4 Dated: April 10, 2020


STEPHEN ROGERS